

## Tower Cranes

Tower Crane Rentals and Sales Modesto - Cranes are a globally recognized form of industrial equipment that is commonly used in the materials handling industry. Oftentimes, they are equipped with chains, wire ropes, a hoist rope or sheaves. These products allow cranes to hoist materials vertically and transport them horizontally. Shipping containers, giant crates, heavy machinery and other items can be transported efficiently. Freight Transportation Cranes simplify loading and unloading and moving items. Their lifting capacity varies depending on the model. Cranes offer a great job site support and the mechanical advantage of an extended lifting capacity. Cranes are found in many industries and often seen on construction sites.

**Specified Use** There are different cranes for many applications. Jib cranes can be used for tighter environments including workshops. Extensive tower cranes can be seen in construction. There are numerous cranes suited for many different jobs. Tight spaces may be more accessible with the use of cranes. Floating cranes can be useful for salvaging sunken ships and other marine items. They may also be used on oil rigs.

**Tower Cranes** A tower crane is a model that is fixed on a concrete slab to the ground. This model is commonly attached to the sides of structures. It offers precise height and lifting reliability. Commonly used for building residential and commercial tall buildings, the base is attached to the mast which may extend for further reach. The crane is capable of rotating thanks to the mast that connects to the slewing unit. Above the slewing component, the operator cab is situated, along with the long horizontal jib and the counter jib. The majority of the load is carried via the long horizontal jib. The counterweight is created by the counter-jib that may utilize concrete blocks. The jib contains the load to and from the crane's center. Usually, the operator of the crane resides in a cab situated on top of the tower, attached to the turntable; however, it may be capable of being mounted on the jib. The operator may rely on a radio remote control apparatus from the ground. The crane operator uses electric motors to operate the lifting hook and control wire rope cables within a system of sheaves. The sizeable horizontal arm contains the cargo hook along with its' motor. The operator commonly works together with a rigger to safely hook and unhook loads. Hand signals are an important part of daily safety. The rigger dictates the lifting schedule for the crane and is responsible to ensure all loads and subsequent rigging is safe and reliable.

**Truck-Mounted Cranes** Truck mounted cranes consist of two parts including the boom and the carrier. These two pieces rely on a turntable to attach them and allow the upper portion to swing from side to side. Modern hydraulic truck cranes are generally single-engine machines. The same engine is responsible for providing power to the crane and the undercarriage. Hydraulics are necessary for delivering power to the upper portion of the crane through the turntable located from the pump attached to the bottom portion. Earlier hydraulic crane trucks commonly had two engines. One engine controlled the hydraulic pump for the outriggers and the jacks while the other engine was responsible for the crane's travel. Some operators prefer the older dual-engine models since there are often turntable leaks many newer units. Cranes often need to travel on roads to different locations, eliminating the need for industrial transportation unless there are size and weight restrictions. Transportation falls under local laws. Generally, bigger cranes have trailers to help the load become distributed over many axles. Some models can be disassembled to meet specific requirements. A crane will often be followed by another truck containing the counterweights that are disassembled for travel.

**Outriggers & Stability** Outriggers are extended horizontally from the chassis of the crane. Vertical stability is achieved by the outriggers to keep the machine level while completing hoisting and stationary applications. Some truck crane units can travel at slow speeds even while carrying a suspended load. Care is given to ensure the load doesn't swing during travel. Most of the anti-tipping capability is related to how stiff the chassis suspension is. Moving counterweights are included in a variety of models to amplify stabilization further than what the outriggers offer. Suspended loads are some of the most stable with most of the crane's weight functioning like a counterweight. Electronic safeguards are in place to monitor the maximum safe loads for stationary work and traveling speeds.

**Overhead and Bridge Cranes** An overhead

crane is often referred to as a bridge crane. This mechanism features a crane with a hook-and-line mechanism and horizontal beam that is designed to run along rails that are spaced widely. These cranes are similar to gantry cranes that are typically found in factory buildings. They attach to rails which run alongside two walls. Double beam or single beam construction model crane designs are available for overhead cranes, which may rely on complex box girder beam or regular steel beams. Certain overhead cranes have the ability to use a control pendant for operation. A double girder bridge can be used in places that require heavy lifting such as 10 tons or more. The box girder style produces a system with a lower deadweight but offers higher system integrity. Cargo can be lifted with a hoist and the trolley that can travel along the bridge along with the bridge component covered by the crane. The steel industry relies on overhead cranes for much of the manufacturing. Steel is typically handled by an overhead crane until it leaves the factory as a finished piece. All steel is handled by an overhead crane from raw materials being poured to storing hot steel for cooling and transporting finished coils. Steel items are moved onto trucks via overhead cranes. Metal fabricators and stampers and the automobile industry rely on these machines. Pulp & Paper Mills Bridge cranes are often relied on for regular pulp mill maintenance including removing equipment such as heavy press rolls. Bridge cranes are used in the construction of paper machines as they facilitate the installation of giant equipment and apparatus including the cast iron paper drying drums and other massive items. Loader Crane Electrically powered with an articulated arm attached to a trailer or a truck and specified for unloading and loading, the loader crane consists of many jointed components that enable the machine to be folded into a small space between uses. Telescoping sections are popular. There are models that have the ability to stow or load themselves without any operator instruction. The operator needs to move around the vehicle for viewing access to the load. Current models often feature a portable cabled control system or radio-linked system that works beside hydraulic controls that are mounted on the crane. Gantry Crane There is a hoist on the gantry crane found in a fixed machinery house or a horizontal trolley that runs along rails often fitted between two beams or a single beam. The crane frame is supported on a gantry system with equalized beams and wheels that run on the gantry rail, usually perpendicular to the trolley travel direction. These cranes are available in many sizes and capable of moving heavy and cumbersome loads for industrial applications and in shipyards.